species, accompanying them with a reproduction of the original figures; on these plants Mr. Fontaine makes many notes and corrections.

With the list of North-Carolina plants thus corrected a comparison is made with those from Virginia, which shows that both areas are of the same age.

A further comparison of the fossil plants from North Carolina and Virginia is instituted with those from Indian and European Mesozoic rocks, when the author arrives at the conclusion that the Mesozoic floras of North Carolina and Virginia are most probably Rhætic in age, certainly not older; he is also inclined to regard the Rhætic as forming transition beds, having more affinity with the Lower Lias than with Triassic strata.

The whole work evinces very careful investigation; the descriptions are full and the value of the monograph is greatly enhanced by the numerous figures which accompany the descriptions. The book cannot fail to prove of the greatest value to those interested in fossil botany. The author has contributed a valuable addition to the ever-increasing monographs of the United-States Geological Survey.

MISCELLANEOUS.

Instinct of Orientation in Helix aspersa. By F. d'A. Furtado.

In a house which I inhabited at St. Michael's, one of the Azores, there was a veranda with a flight of steps leading to a little court or garden. Above this was a second veranda supported by a stone column, which rested on the wall of the lower veranda. At the foot of the column had been set a flower-pot with a young banana bearing two or three leaves.

One morning I noticed a snail (*Helix aspersa*) lodged between the pot and the column, as if waiting for night to attack the plant. A leaf had already been gnawed, and to stop further depredations I threw the snail into the court. It was not much the worse for the fall, as it chanced to light upon a small manure-heap.

Next morning I was surprised to find the snail in precisely the same position as before between the pot and the column. I knew it by its size and colour, as well as by a curious covering of spiders' webs which it bore. It was evident that the snail possessed a remarkable sense of direction, which enabled it, after a violent shock, to make its way back over a distance of at least 6 metres in a very short time. In order to get to the bottom of the matter I threw the snail back to the heap and watched the result, which was as follows:—

June 10, 1884.—At about 9 a.m. the snail was resting, completely retracted within its shell, on the rail of the staircase, having travelled nearly 4 metres. In the evening it resumed its march, but so slowly that by 10 o'clock it had only reached the top of the rail, where it stopped again, having traversed a metre in two hours.

Twenty minutes after midnight it began to travel along the balustrade of the veranda, taking at first a very undecided course, but as soon as it reached the edge of the balustrade making straight for the banana. Halfway it was turned aside by some fish-scales, which no doubt indicated that the surface was contaminated; but it soon regained its previous direction. Near the column it fell in with a grooved washing-board, which it seemed to remember, for it reared its head and tentacles towards it while still 2 centimetres off. So far 2 metres had been traversed in twenty minutes. The snail now advanced resolutely from the board to the flower-pot as if over known ground. (The board had lain in the same place for several days.) I watched its movements by a lamp set far off so as to give only a faint light; but when it reached the pot the animal became shaded by weeds which grew there, and I found it necessary to bring the lamp near, in order to observe the movements of the snail's lips and tentacles. It climbed the pot rapidly, mending its pace as it got nearer, then it examined the rim with care, and at last crawled over the mould. For a quarter of an hour it wandered among the weeds in the pot, licking them frequently. When I saw it explore the soil with its lips and larger tentacles, while the reproductive orifice seemed to open from time to time, I thought that it was seeking a convenient spot to lay its eggs. At last it came up to the banana, mounted it, and began to gnaw the leaf previously attacked exactly where it had left off before. I was standing a little way off to avoid disturbing the snail, but could readily detect the peculiar odour of the gnawed leaf. Very likely the snail could perceive, even in an uninjured leaf, that scent which only became apparent to me when the leaf was bruised or cut, and this may have helped to guide its course. Scent alone will not, however, explain all the movements of the animal. At 2 P.M. I left it feeding.

June 11.—At 10 A.M. very little of the leaf had been devoured. The snail was comfortably established, as before, between the column and the pot.

After this the snail wandered over a vine which trailed about the column and upper veranda. Finding that it was disposed to escape to the next garden, I opened it on June 17 to see whether it was ready to lay eggs. There was not a single egg in the oviduct, and a large dart in the dart-sac proved that no sexual congress had lately taken place.

These observations seem to show that a land-snail may possess an instinct which enables it to choose its abode and return to it at pleasure. We have here the same love of home and topographical knowledge which have been observed, and noted with wonder, in the limpet (George Roberts, in Woodward's 'Manual of Mollusca,' p. 11).—*Zoological Section of the Lisbon Museum*, Oct. 27, 1885.

On the Existence of a Postoral Band of Cilia in Gasteropod Veligers. By J. Playfair M'Murrich.

The question as to the phylogeny of the Mollusca is as yet undecided, though recent researches indicate a relationship between this group and that of the Annelida. The discovery of the peculiar